



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,031	03/27/2001	Xiaoning Nie	P20721.P05	7309

7055 7590 11/02/2005

GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VA 20191

EXAMINER

GAYESKI, MICHAEL R

ART UNIT PAPER NUMBER

2143

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/817,031	Applicant(s) NIE, XIAONING	
	Examiner Michael R. Gayeski	Art Unit 2143	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/15/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-24 and 26-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-24 and 26-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3/27/01 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

MO

DETAILED ACTION

1. The amendments received on 8/16/2005 and 7/18/2005 have been entered in the record. Claims 21-24 and 26-29 are presented for examination. Claims 21, 26, and 28 are currently amended. Claim 25 is canceled.

Drawings

2. The drawings are objected to because Figures 2 and 3 are not particularly illustrative of the claimed invention. Adding short, descriptive text labels similar to the ones found in Figure 1 would greatly improve the readability of the drawings.

3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

Art Unit: 2143

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 22 and 26-28** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. **Claim 22** recites the limitation "the server module data processes" in line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim. The Examiner suggests changing the language to read "the server module *data processing unit* processes..."

7. **Claims 26, 27, and 28** recite the limitation "said/the routing server module" in lines 2 of the claims. The language of the base claim suggests that there may in fact be more than one routing server module in the modular server system. Accordingly, the claim is indefinite; as it is not clear which routing module the dependant claim refers to. The Examiner suggests changing the language to read "said *at least one* routing server module(s)..."

Claim Rejections - 35 USC § 103

Art Unit: 2143

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. **Claims 21-24 and 26-29** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bestavros et al. (U.S. Patent 6,370,584) in view of High Performance Networking, by Mark A. Sportack et al., further in view of TCP/IP Illustrated Volume 1: The Protocols, by W. Richard Stevens, and further in view of Liu et al. (U.S. Patent 5,031,089) (hereinafter referred to as Bestavros, Sportack, Stevens, and Liu, respectively).

10. With regard to **claim 21**, Bestavros teaches a modularly designed server having a plurality of server modules [**See Figure 1, items 10, 12, 14, etc...; and Column 2, lines 14 and 15: A computer cluster is modular**], each server module of said plurality of server modules comprising:

A data processing unit that processes data of the packet [**Column 3, lines 21-54**];

An addressable communications interface that connects to an external network via which the data packet is transmittable [**See Column 2 line 64 – Column 3 line 2: A network interface is necessarily inherent to connect a computer to a LAN**];

A routing calculation unit that checks whether an incoming data packet addresses a server module of the server [**See Column 3, lines 24-35: The hash of the client identifier is mapped to a particular module**], said routing calculation unit determining a server module address of the server module of the server using a routing

Art Unit: 2143

table in accordance with a utilization level of data processing units of all server modules to which the data packet is to be transmitted **[See Column 3, lines 41-46]**.

11. Bestavros teaches the invention substantially as claimed, but is silent on the inclusion of *a switching interface via which a data packet is transferred*, and that each server module includes *a switching interface that connects to the switching device*. However, the concept of using a switched network for purposes of interconnection is old and well known in the art. For example, Sportack, in the analogous art of computer networking, teaches connecting a switch to a network **[See Sportack, page 146, Paragraph 4]**, and integrating a switched adapter into a network server **[See Sportack, Page 150, Heading "Network Servers"]**.

12. It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to include a switched interface on each module, and a central switch in the network of Bestavros, with the motivation of providing a cost-effective way to increase the performance of the network **[See Sportack, page 153, "Summary"]**.

13. As discussed above, Bestavros teaches the invention substantially as claimed, but is silent on a *routing server module that constantly updates the routing table in accordance with evaluated utilization data of other server modules*. However, such a technique is also old and well known in the art. For example, Liu, in the same field of endeavor, teaches polling a server to obtain information about a system's load, and transferring it to other nodes **[See Liu, Column 7, line 22-27]**.

Art Unit: 2143

14. It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to include a polling mechanism for updating the loads of the system constantly, with the motivation of allowing the system to adapt quickly to load changes **[See Liu, Column 8, lines 46 and 47]**.

15. As discussed above, Bestavros teaches the invention substantially as claimed, but is silent on *the routing server transmitting a current routing table to the other server modules*. However, the technique and desirability of distributing routing tables to other routers is old and well known in the art, and a variety of dynamic routing protocols exist to provide desirable solutions to this particular problem. Stevens, in the analogous art of networking, describes RIP protocol, which teaches sending a routing table to all other servers **[See Stevens, Page 131, Paragraph 2: "Regular routing updates. Every 30 seconds..."]**.

16. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to include a dynamic routing protocol, since Stevens teaches that it is a desirable feature to have in networked systems with more than one router **[See Stephens, Page 127, Section 10.1]**, and the entire point of the system of Bestavros is to provide multiple routers **[See Bestavros, Abstract]**.

17. By this rationale, claim 1 is rejected.

18. With regard to **claims 22 and 23**, Bestavros additionally teaches that the server processes data packets of a particular prescribed application type; and that the data

Art Unit: 2143

packet contains information of the prescribed application type, and that the server module address is calculated in accordance with the particular prescribed application type **[See Bestavros, Column 3, lines 41-46]**.

19. With regard to **claim 24**, Bestavros teaches the substantive limitations of the claim, but is silent on including a buffer for temporarily storing data packets. However, the Examiner takes Official Notice that both the technique and benefits of including a buffer in such a system are notoriously old and well known in the art. Accordingly, it would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to buffer the incoming data packets, with the motivation of increasing the performance of the network interface.

20. With regard to **claim 26**, Stevens also teaches that the RIP protocol is used for routers near its neighbors **[See Stevens, page 128, paragraph 2: An Autonomous System comprises routers that are central to a system]**.

21. With regard to **claim 27**, it presents no substantive limitations not addressed in the citations as applied to claim 1, and is rejected for similar reasons.

22. With regard to **claim 28**, Bestavros further teaches that the routing table is updated based on assigned application types **[See Bestavros, Column 3, lines 44 and**

Art Unit: 2143

45], and priority information for the data packet **[See Bestavros, Column 3, line 46: QoS (Quality of Service) specifies a minimum service priority for a packet]**.

23. With regard to **claim 29**, Bestavros further teaches that a data process executed on one server module is transmitted to data processing units of other server modules when the utilization level of the data processing unit of a particular server module exceeds a predetermined level **[See Column 3, lines 15-54: The service can be readily moved from one server to another]**.

Response to Arguments

24. Applicant's arguments with respect to claim 21 have been considered but are moot in view of the new ground(s) of rejection. As discussed above, the system of Bestavros anticipates the main inventive concept of the Applicant's invention, namely a modular, distributed, system wherein the routing functions are also distributed amongst the system modules, and the remaining limitations were already known and readily applied prior to the Applicant's invention.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael R. Gayeski whose telephone number is 571-272-0978. The examiner can normally be reached on M-F: 8:00AM-4:30PM.

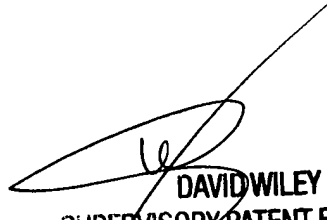

Art Unit: 2143

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley can be reached on 571-272-3923. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael R Gayeski
Examiner
Art Unit 2143

mrg



DAVID WILEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100